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| 09/740,544 | 12/19/2000 | John O. Moody | LM(F)4879 | 8401 |

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| EXAMINER |
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NGUYEN, ANH T

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| ART UNIT | PAPER NUMBER |
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2127

DATE MAILED: 02/12/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/740,544

Applicant(s)

MOODY ET AL.

Examiner

Anh T Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-56 are presented for examination.
2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper."
3. To insure proper consideration and to the extent required by 37 CFR 1.56, applicant is required to supply a copy of the publication references cited in the specification because it is not readily available to the examiner (see page 23, lines 4-36).

Claim Objections

4. As per claim 30, line 3, "f" should recite – "if".

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 36-56 are rejected under 35 U.S.C. 101 because the claimed invention is directed to nonstatutory subject matter where the claims recite a computer program product and is not tangibly embodied on a computer readable medium (i.e. a computer program product stored in a computer readable medium).

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To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. 101(nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The resulting claims do not clearly set forth the metes and bounds of patent protection.

A. The following terms lack proper antecedent basis:

“said network” - Claim 1

“said agent” – Claim 1, 22, and 36

B. The claim language in the following claim is not clearly understood:

a. As per claim 1,

i. line 2, it is unclear what is being comprising (i.e. of resources and task execution, wherein the distributed data processing system comprising:)

ii. lines 4-5, it is unclear whether “computers” in line 4 is the same as “a plurality of computers in line 6”. (i.e. if they are the same then “the” or “said” should be used.

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- iii. lines 5-7, recites "a plurality of computers connected to said network for running programs thereon including a central authority and at least first and second autonomous agents". This phrase is indefinite because it is unclear whether applicant intends that each one of the plurality of computers to include a central authority and at least first and second autonomous agents or all of the computers of the plurality of computers include a central authority and at least first and second autonomous agents.
- b. As per claim 5, line 1-2, it is unclear what is meant by "PN graph" and "PN representation".

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 22 and 36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 19 and 29 of copending Application No. 09/740,418 (hereinafter 418). Although the conflicting claims are not identical,

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they are not patentably distinct from each other because both distributed data processing systems comprise substantially the same elements of a communications network and a plurality of computers including at least first and second autonomous agents wherein each agent employs the associated graph to negotiate with each other. The difference between the 418 application and the instant application is the lack of a graph generator. Although the instant application does not claim the graph generator, it would have been obvious to one of ordinary skill in the art that each agent receives a graph associated therewith from somewhere or some entity.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 200, or (2) voluntarily published under 35 U.S.C. 122 (b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 1-4, 22-24 and 36-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al., USPN 6,263,358, hereinafter Lee.

13. As per claims 1, 22 and 36, Lee teaches the invention as claimed including a distributed data processing system employing negotiation among autonomous agents for allocation of resources and task execution (Fig.2) and comprising:

a communications network (150, Fig.1) for passing messages between computers connected thereto (col.6, lines 17-18);

a plurality of computers connected to said network for running programs (Fig.1) thereon including a central authority and at least first and second autonomous agents(col.9, lines 14-15);

each agent receives a graph (310, Fig.3, col.9, line34; col.24, lines 41-42) associated there and wherein the graph represents for the associated agent what resources that agent has (500, Fig.5, col.14, lines 59-67; col.15, lines 1-2) and what task or tasks that agent may perform(col.24, lines 65-67; col.26, lines 31-43) and each said agent employs the associated said graph to determine what resource or resources are needed by that agent to carry out the task or tasks to be performed by that agent (col.6, lines 30-35); and,

said agents negotiate with each other for the resources needed to carry out the task or tasks to be performed by said agents (col.9, lines 17-23; col.15, lines 12-14 and 23-24).

14. As per claims 2, 23 and 37, Lee teaches wherein each said agent additionally receives initialization data relating to the associated said graph (col.24, lines 41-42).

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15. As per claims 3 and 38, Lee teaches wherein each said agent determines whether said initialization data has been received (col.25, lines 39-42).

16. As per claims 4 and 39, Lee teaches wherein if the determination is affirmative, then the agent sets up an internal representation respecting the initialization data (140, Fig.10, col.33, lines 33-35).

17. As per claim 24, it is rejected for the same reasons as claims 3 and 4 set forth hereinabove.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 5-21, 25-26 and 40-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al., USPN 6,263,358, hereinafter Lee.

20. As per claims 5,25-26 and 40 Lee does not specifically teach wherein said graph is a PN graph and said representation is a PN representation and each said agent calculates deadlock avoidance structures relating to said PN representation and graph. Lee does teach the use of coordination graphs (col.9, line 34; col. 38-40) and GANTT chart type presentations (col.34,

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lines 18-25) to avoid undesired behaviors such as deadlock (col.32, line 57-65). It would have been obvious to one of ordinary skill in the art to include the PN graph and PN representation, because it is widely used to model discrete systems and provides for ease of analysis and design by facilitating the mapping of tasks.

21. As per claims 6 and 41, Lee does not explicitly teach wherein each said agent receives data representing task completion rewards. However, one of ordinary skill in the art would have recognized that associating rewards with cost data would serve as a performance-enhancing tool to improve the overall efficiency of the system because it provides incentives for task completion.

22. As per claims 7 and 42, Lee teaches wherein each said agent determines whether said cost data has been received (col.24, line 66-67).

23. As per claims 8 and 43, Lee teaches wherein each said agent forwards update data to a central authority and wherein said update data represents local connections and dependencies (col.25, lines 2-6).

24. As per claims 9, 28 and 44, Lee teaches wherein each said agent additionally forwards additional update data to said central authority wherein said additional update data also includes data representing remaining resources and task status (col.39, lines 11-13; lines 21-25).

25. As per claims 10 and 45, Lee teaches wherein each said agent calculates desired output offer costs (col.19, lines 29-31; col.27, lines 66-67; col.28, lines 1-2).

26. As per claims 11 and 46, Lee teaches wherein each said agent forwards outgoing offers of resources to other agent or agents (col.28, lines 42-43).

27. As per claims 12 and 47, Lee teaches wherein each agent determines whether any additional resource or resources are needed for task completion by that agent (col.15, lines 23-25).

28. As per claims 13 and 48, Lee teaches wherein each agent calculates desired resource bid cost if any additional resource or resources are needed (col.15, line 37).

29. As per claims 14, 31 and 49, Lee teaches wherein each said agent forwards outgoing bids for resources to the other agent or agents (col.28, lines 42-43).

30. As per claims 15 and 50, Lee teaches wherein each said agent receives incoming offers of resources from the other agent or agents (col.8, lines 50-51, line 65).

31. As per claims 16 and 51, Lee teaches wherein each said agent receives data representing incoming bids from the other agent or agents seeking additional resource or resources (col.28, lines 42-43).

32. As per claims 17 and 52, Lee teaches wherein each said agent determines whether there are any acceptable offers or bids from the other agent or agents (col.15, line 48).

33. As per claims 18 and 53, Lee teaches wherein each said agent making an affirmative determination respecting acceptable offers or bids and forwards an outgoing acceptance (col.15, line 48).

34. As per claims 19 and 54, Lee teaches wherein each agent that determines that there are no acceptable offers or bids receives incoming acceptances from the other agent or agents (col.15, line 49).

35. As per claims 20, 34 and 55, Lee teaches wherein each agent determines if any more resources are required for task completion by that agent (col.15, line 50).

36. As per claims 21,35 and 56, Lee teaches wherein each agent that no longer needs resources searches the associated graph for a path for task completion and then completes that task (col.16, line 19).

37. As per claim 24, it is rejected for the same reasons as claims 3-4 set forth hereinabove.

38. As per claim 27, it is rejected for the same reasons as claims 7-8 set forth hereinabove.

39. As per claim 29, it is rejected for the same reasons as claims 10-11 set forth hereinabove.

40. As per claim 30, it is rejected for the same reasons as claims 12-13 set forth hereinabove.

41. As per claim 32, it is rejected for the same reasons as claims 15-17 set forth hereinabove.

42. As per claim 33, it is rejected for the same reasons as claims 18-19 set forth hereinabove.

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43. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Smith USPN 6,088,732 and Temmyo USPN 5,283,896.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh T Nguyen whose telephone number is (703) 305-8649. The examiner can normally be reached on Monday-Friday from 7:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An, can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5484.

Anh T. Nguyen 
Art Unit 2127
February 6, 2004


MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100